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(71) Applicant and

(72) Inventor: OH, Woon-Young [KR/KR]; 103-403  
Opo-Woorim Apt, Kosan-Ri Opo-Myon Kwangju-si,  
Kyonggi-Do 464-710 (KR).

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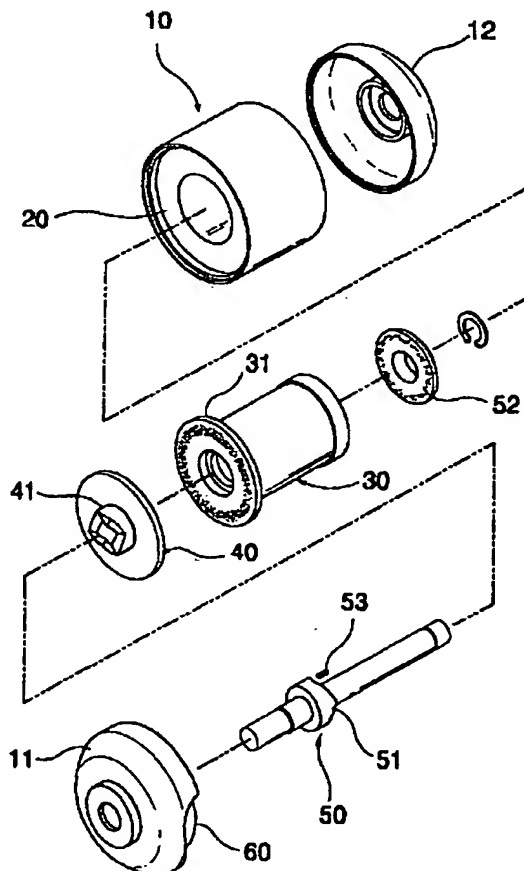
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(54) Title: CLUTCH-BRAKE MOTOR



(57) Abstract: Disclosed is a clutch-brake motor, which is miniaturized and controls power by using a wedge-connected clutch brake. The motor, which has a stator for generating a magnetic force as a source of a rotational force within a housing, and an armature having a front end and a back end formed on the housing is rotated by the magnetic force of the stator, includes an output shaft 50 having a front end and a back end connected to a front cover 11 and a back cover 12 of the housing 10 provided to the stator 20, the armature 30 formed on the output shaft 50, and a wedge type clutch brake for controlling the rotation of the output shaft 50 by the armature 30.

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

TITLE

## CLUTCH-BRAKE MOTOR

## BACKGROUND OF THE INVENTION

TECHNICAL FIELD

The present invention relates to a clutch-brake motor, and more particularly to a clutch-brake motor, which is miniaturized by using a wedge-connected clutch brake in order to control power.

BACKGROUND ART

Generally, a motor comprises an amateur, which is integrated with output and rotates, a stator for providing a rotational force to the amateur, and a housing for the amateur and the stator. The housing is provided with a front cover and a back cover.

The aforementioned conventional motor serves to operate a machine by rotating the amateur by a magnetic field of the stator generated by the electric supply.

The conventional motor is used with an additional clutch brake for controlling the rotational force transferred into the machine. Otherwise, an additional clutch brake is provided prior to the motor in manufacture.

However, as described above, in case the clutch brake is provided prior to the motor, the motor is large in size and the production cost of the motor increases.

**DISCLOSURE OF THE INVENTION**

Therefore, the present invention has been made in view of the above problems, and it is an object of the present invention to provide a wedge type clutch brake, in which an output axis is formed on a front cover and a back cover of a housing provided with a stator and an amateur is formed on a driving axis, thereby controlling the connection between the amateur and the output axis.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is an exploded perspective view of an embodiment of the present invention;

Fig. 2 is a cross-sectional view of an embodiment of the present invention; and

Fig. 3 is a perspective view of another embodiment of the present invention, showing a wedge type clutch brake.

**BEST MODE FOR CARRYING OUT THE INVENTION**

Best Mode for Carrying Out the Invention

Hereinafter, referring to the accompanying drawings,

preferred embodiments of the present invention will be described in detail.

The present invention relates a motor provided with a clutch brake for interrupting the output of power therein, thereby minimizing the size of the motor and reducing the production cost. In the motor, which comprises a housing 10 with a front cover 11 and a back cover 12, a stator 20 for generating a magnetic force as a source of a rotational force is formed within the housing 10, and an amateur 30 having a front end and a back end formed on the housing 10 on the front cover 11 and the back cover 12 of the housing 10 and being rotated by the magnetic force of the stator 20, the motor comprises an output shaft 50 having a front end and a back end connected to the front cover 11 and the back cover 12 of the housing 10 provided to the stator 20, the amateur 30 formed on the output shaft 50, and a wedge type clutch brake for controlling the rotation of the output shaft 50 by the amateur 30.

Herein, the wedge type clutch-brake comprises an output wedge portion 51 formed on an end of the output shaft 50 in flange shape and provided with a sloped wedge surface inserted in the side of the amateur 30, a clutch brake plate 40 in a circle provided with a clutch brake wedge surface corresponding to the wedge surface of the output wedge portion 51 and coupled with the output shaft 50 in a

designated distance by a clutch brake spring 53, an output plate 31 in a plate formed on an end of the amateur 30 so as to be frictionally connected to the clutch brake plate 40, and an interrupting magnetic 6 for electrically inserting the clutch brake plate 40 into the output wedge 51 so that the clutch brake plate 40 is removed from the output plate 31.

A support plate 52 is formed opposite to the output shaft 50 provided with the wedge clutch brake and connected to the amateur 30 for compensating the driving force generated during the operation of the clutch brake. The support plate 52 is frictionally connected to the amateur 30. During operating the clutch brake, this connection is firmly implemented.

Further, a friction pad is formed on the interrupting magnetic 60, thereby promptly stopping the rotation of the output shaft in controlling the clutch brake.

Hereinafter, the operation of the present invention is described.

In the present invention in which the amateur 30 is formed on the output shaft 50 and the wedge type clutch brake controls the rotational force from the amateur 30 to the output shaft 50, when power is supplied to the stator 20 of the motor, the amateur 30 is rotated by the magnetic force generated by the stator 20.

Herein, the power is supplied to the interrupting magnetic 60, and the clutch brake plate 40 formed on the output shaft 50 is separated from the output plate 31 of the amateur 30 and connected to the interrupting magnetic 60.

5 The wedge portion 41 of the clutch brake of the clutch brake plate 40 is engaged with the wedge portion 51 of the output shaft, thereby not transferring the rotational force of the amateur 30 into the output shaft 50, that is, causing free rotation.

10 Then, when the power is interrupted by the interrupting magnetic 60, the clutch brake plate 40 engaged with the wedge portion 51 of the output shaft is separated from the interrupting magnetic 60 and frictionally connected to the output plate 31 of the amateur 30. Thereby, the clutch brake  
15 plate 40 is rotated by the amateur 30.

As described above, when the clutch brake plate 40 is rotated by being frictionally connected to the output plate 31 of the amateur 30, the wedge portion 51 of the output shaft is rotated by the wedge portion 41 of the clutch brake. During  
20 the rotation of the wedge portion 51 of the output shaft by the wedge portion 41 of the clutch brake, the clutch brake plate 40 is more firmly attached to the output plate 31 of the amateur 30 by the driving force generated by the wedge engagement.

25 Further, as described in another embodiment of the

present invention, the support plate 52 is formed on the output shaft 50 in an opposite part of the wedge type clutch brake, thereby preventing the output shaft from being deviated by the driving force generated during the operation of the clutch brake.

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

#### INDUSTRIAL APPLICABILITY

Therefore, the present invention provides a motor provided with a clutch brake therein, thereby minimizing the size of the motor and reducing the production cost.

Further, the operation of the motor is performed by an interrupting magnetic, thereby being promptly and effectively carried out.



**WHAT IS CLAIMED IS:**

1. A wedge type clutch-brake motor, in which a stator  
for generating a magnetic force as a source of a rotational  
5 force is formed within a housing, and an amateur having a  
front end and a back end formed on the housing is rotated by  
the magnetic force of the stator, said wedge type clutch-  
brake motor comprising:

an output shaft 50 having a front end and a back end  
10 connected to a front cover 11 and a back cover 12 of the  
housing 10 provided to the stator 20;

the amateur 30 formed on the output shaft 50; and

a wedge type clutch brake for controlling the rotation  
of the output shaft 50 by the amateur 30.

15 2. The wedge type clutch-brake motor as set forth in  
claim 1, wherein the wedge type clutch-brake comprises:

an output wedge portion 51 formed on an end of the  
output shaft 50 in flange shape and provided with a sloped  
20 wedge surface inserted in the side of the amateur 30;

a clutch brake plate 40 in a circle provided with a  
clutch brake wedge surface corresponding to the wedge  
surface of the output wedge portion 51 and coupled with the  
output shaft 50 in a designated distance by a clutch brake  
25 spring 53;

an output plate 31 in a plate formed on an end of the amateur 30 so as to be frictionally connected to the clutch brake plate 40; and

5 an interrupting magnetic 6 for electrically inserting the clutch brake plate 40 into the output wedge 51 so that the clutch brake plate 40 is removed from the output plate 31.

10 3. The wedge type clutch-brake motor as set forth in claim 2, further comprising a support plate 52 which is formed opposite to the output shaft 50 provided with the wedge clutch brake and connected to the amateur 30 for compensating the driving force generated during the operation of the clutch brake.

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FIG 1

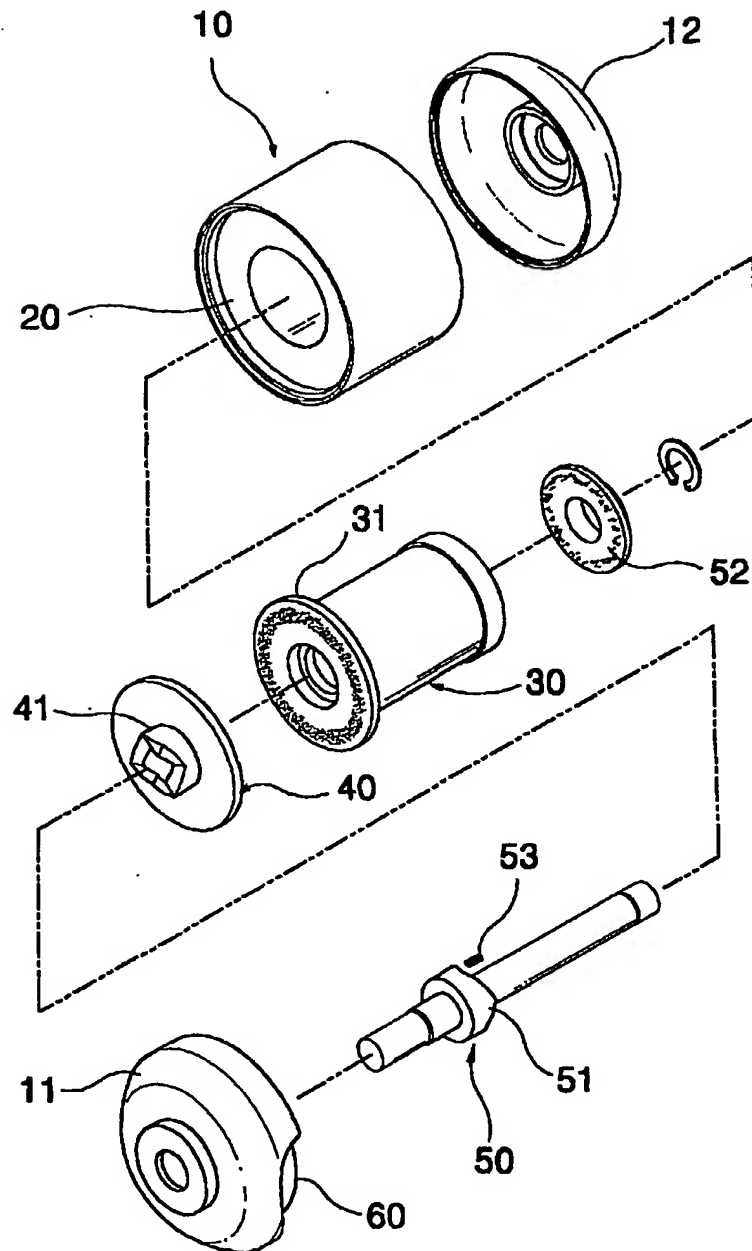
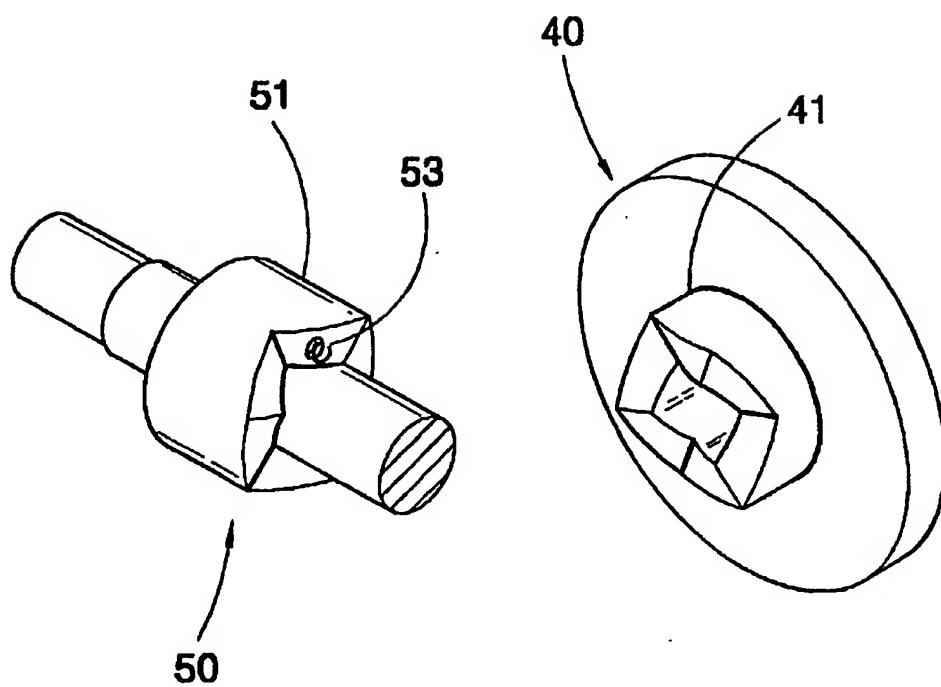




FIG 3



**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 H02K 7/12**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H02K 7/10, H02K 7/102, H02K 7/12, H02K 7/106

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean patents and applications for invention since 1975

Korean utility models and applications for utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
"A"	JP55005020 A(TOSHIBA CORP) 14, JAN, 1980, WHOLE DOCUMENT	1-3
"A"	JP04244759 A(NIPPONDENSAN CORP) 1, SEP, 1992, WHOLE DOCUMENT	1-3
"A"	KR201997007359 U(SAMSUNG ELECTRIC CORP) 21, FEB, 19997, WHOLE DOCUMENT	1-3

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

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Korean Intellectual Property Office  
920 Dunsan-dong, Seo-gu, Daejeon 302-701,  
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LEE, Chang Hee

Telephone No. 82-42-481-5644



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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datePatent family  
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JP55005020 A

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JP04244759 A

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